Table 1 Interior Refinery Area
Evaluation of Technologies

Technology	Description	Screening Parameter			Decision
		Site Characteristics	Waste Characteristics	Technology Limitations	
No Action	No action provides a baseline by which other technologies are compared. With this technology, no remedial efforts, improvements, or enhancements would be made.	Not Applicable	Not Applicable	Does not remediate chemicals of concern (COC) in groundwater or soil. Does not remove free-phase hydrocarbons to prevent future releases to groundwater.	This technology will not be considered further.
Institutional Controls	Institutional controls would involve the prevention of direct contact with the COC by limiting access and ensuring long-term maintenance of the selected corrective measure(s). Site access and use would be limited through the use of physical barriers (e.g., fences, gate restrictions, etc.), security monitoring, and on-site deed restrictions.	Location of the Site would allow for access control. Site is in an industrial area which would reduce the chances for residential development.	Characteristics of the waste material and present location would encourage the use of institutional controls. Future Site development could result in the excavation of impacted soil or contact with impacted groundwater.	Does not remediate COC in groundwater or soil; however, could be combined with other technologies to provide a protective alternative.	This technology will be evaluated in combination with other technologies.
Air Sparging	Air would be mechanically injected into the groundwater zone to promote biodegradation and volatilization of hydrocarbons.	Though the Site lithology is conducive to the air sparging technology, implementing an effective system would be difficult. The Site is an active refining facility and constructing an air sparging system around existing piping, tanks, and other structures would be difficult.	Waste characteristics compatible.	Air sparging would be limited by well placement and venting of any vapors produced. Site piping, pavement, and structures would limit the placement and coverage of air sparging wells.	This technology will not be considered further.
Enhanced Anaerobic Biodegradation	Electron receptors, such as sulfate, would be added to the subsurface to enhance anaerobic biodegradation.	The Site is an active refining facility and enhancing biodegradation in the subsurface, in an efficient manner (considering obstructions such as piping, tanks, and other structures), would be difficult.	Waste characteristics compatible.	Enhancing anaerobic biodegradation is limited by injection point (well) placement. Site piping, pavement, and structures would limit the placement and coverage of the well points.	This technology will not be considered further.
Enhanced Aerobic Biodegradation	Native hydrocarbon-degrading bacteria would be stimulated, through the introduction of oxygen and nutrients, to promote and enhance biodegradation.	The Site is an active refining facility and enhancing biodegradation in the subsurface, in an efficient manner (considering obstructions such as piping, tanks, and other structures), would be difficult.	Waste characteristics compatible.	Enhancing aerobic biodegradation is limited by injection point (well) placement. Site piping, pavement, and structures would limit the placement and coverage of the well points.	This technology will not be considered further.
Monitored Natural Attenuation	Natural attenuation would remediate COC and prevent COC from reaching Site boundaries.	Current Site conditions would support natural attenuation. Site data indicate that natural attenuation is occurring.	Waste characteristics compatible.	No technology limitations.	This technology will be considered.

Table 1 (con't) **Interior Refinery Area**
Evaluation of Technologies

Technology	Description	Screening Parameter			Decision
		Site Characteristics	Waste Characteristics	Technology Limitations	
Oxygen Release Compound	An oxygen release compound would be injected into the subsuface to release oxygen to groundwater and enhance aerobic biodegradation.	Though the Site lithology is conducive to the oxygen release compound technology, implementing an effective system would be difficult. The Site is an active refining facility and installing oxygen release points around existing piping, tanks, and other structures would be difficult.	Waste characteristics compatible.	The oxygen release compound would be limited by injection point placement. Site piping, pavement, and structures would limit the placement and coverage of the injection points.	This technology will not be considered further.
Soil Vapor Extraction	A vacuum system would be installed to pull air through the subsurface and promote volatilization and recovery of hydrocarbons from soil.	Though the Site lithology is conducive to the soil vapor extraction technology, implementing an effective system would be difficult. The Site is an active refining facility and installing vapor extraction wells around existing piping, tanks, and other structures would be difficult.	Waste characteristics compatible.	The technology would be limited by vapor extraction well placement and paved surfaces and other structures. The technology relies on pulling air through the subsurface which would be inhibited by the impervious surfaces.	This technology will not be considered further.
Thermal Desorption	Thermal desorption consists of thermally treating impacted soils in the subsurface. Specially designed equipment heats the materials to high temperatures and recovers hydrocarbon vapors.	Though the Site lithology is conducive to remediation by soil vapor extraction or some type of pumping, thermal desorption would be difficult to implement. The Site is an active refining facility and use of the thermal technology could possibly create a dangerous situation.	Waste characteristics compatible.	The technology would be limited by remediation well placement and paved surfaces and other structures. The technology relies on thermally treating the subsurface which would be inhibited by the impervious surfaces and other Site structures.	This technology will not be considered further.

Note: COC = constituents of concern